Modellreihe
Type

RO*50 BNA

Vollautomatische Anhängekupplung
Automatic Towing Hitch
Atelle de remorque entièrement automatique
## Table of contents

### Series RO*50 BNA
Automatic Towing Hitch
with hole pattern G 6
ECE 55R-01 1614

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**Official note**

When fitting the trailer coupling the regulations for fitting mechanical fastening systems in accordance with appendix 7 ECE R 55-01 and the national regulations for commercial vehicles must be observed.

Subject to technical changes without prior notice
Safety instructions

The safety instructions are summarised in a single chapter. In any situation where the user of the trailer coupling is at risk, the safety instructions are repeated in the individual sections and marked with the warning symbol shown here.

When handling hitches, prime movers and trailers the relevant safety regulations in the respective country must be observed (e.g. Berufsgenossenschaft in Germany). Any safety instructions in the operating manual of the tractor vehicle and the trailer remain valid and must be observed.

For operation, maintenance and assembly the safety instructions listed below must be observed. Further safety instructions are then given in the individual case which relate directly to the respective activity.

Safety instructions for operation

- The hitch may only be operated by authorised persons.
- The installation and operating instructions of the respective hitch retain their validity and must be observed.
- Only use the hitch and the towing eye of the trailer if they are in perfect technical condition.
- Only carry out hitching / unhitching operations on firm, level ground.
- During hitching, nobody may stand between the tractor vehicle and the trailer.
- After every hitching operation the correct locked status of the trailer coupling must be checked by means of the control pin or the remote indicator. Only drive the rig in the correctly locked status.
- The remote indicator does not exempt the driver from the obligation to check before driving (Regulations Authorising the Use of Vehicles for Road Traffic). Before driving off, among other things, the coupling status of the mechanical connection device for the tractor vehicle and the trailer must be checked.

Safety instructions for maintenance

- For maintenance work, only use the prescribed lubricants.
- Maintenance work may only be carried out by qualified personnel.

Safety instructions for installation

- Installation may only be carried out by authorised workshops.
- Installation must be carried out in compliance with the relevant accident prevention regulations and the technical regulations for mechanical equipment.
- Only original ROCKINGER components may be used.
- Instructions and installation guidelines of the vehicle manufacturer must be observed, e.g. type of fastening, clearances etc.
- All screwed connections must be tightened with the prescribed tightening torque.
- Work may only be carried out on the trailer coupling when it is closed. Risk of injuries!

The installation of the hitch on the prime mover must be carried out in accordance with annex 7 of ECE R 55-01 and must be checked accordingly. As applicable, the relevant licensing regulations in the respective country must be observed. The remote control and the remote indicator are equipment with safety components. This is why the installation must be documented.

The hitch, the remote control and the remote indicator are connection devices which require model approval and are subject to the highest safety requirements. Alterations of any kind shall cause the warranty to lapse and invalidate the type approval, which in turn invalidates the vehicle operation permit.
1. Fitting

1.1 Before installation

Please note:
– relevant national provisions
– vehicle Manufacturer’s specification
– technical rules for installing pneumatic systems

1.1.1 Mounting of the towing hitch
A cross member with a hole pattern 160 x 100 mm with 4 x \( \phi \) 21 mm holes and a central hole of 95 mm is required. The cross member thickness is max. 32 mm (Figure 1).

1.1.2 The towing hitch RO-50 BNA
Is already pre-assembled with the hydraulic unit.

1.1.3 To steer pneumatic the hydraulics
A connection is required for a 6 x 1 mm hose on the secondary consumer of the four-circuit protection valve (maximum 10 bar, minimum 5 bar).

1.1.4 Check!
Screws (PS) to position the hydraulic must be completely screwed in (Figure 2).

No headboard level allowed!
1.2 Mounting the towing hitch

- Slide the fully pre-mounted towing hitch with the hydraulic onto the cross member in driving direction through the 95 mm hole until the edge of the bearing.

- The towing hitch must be fastened then to the cross member with 4 flange screws M20 x 1.5 x 80 lg –10.9 and secured with 4 flange safety nuts M20 x 1.5 –10. Tightening torque 520 + 40 Nm*

* Tightening torque for screws use a torque meter to fix according to DIN ISO 6789, class A or B

NOTE: Mount the bolt heads on the side directed towards the funnel (cross member outside) (fig 3).
1.3 Connecting the hydraulic unit

The pneumatic 3/2 control valve VP is pre-assembled at the automatic unit of the towing hitch.

C1: remove plastic plugs K from connection 1 + 2 + 4
C2: do not scratch or damage internal sealing surfaces.
C3: slightly grease the seals on the angle connector with the grease (in the equipment pack)
C4: press angle plugs into the resulting overthrow screw tightly until the upper O ring is fully exposed in the screw and the plug can no longer be pulled out. **When running MAN, a "Voss" connector (not at included at delivery) is to be used.**

The hoses from the equipment pack are pre-mounted with the angular plugs must be connected to the respective connectors on the VP and hydraulic 4.

At the end, the connection P must be connected to the four-circuit protection valve to ancillary consumers (**maximum air pressure 10 bar**). The laying of the pneumatic hoses must be carried out according to the rules of the technology!

**Attention! The hydraulic unit is maintenance-free and must not be opened! Warranty loss in the event of an infringement!**
1.4 Use of Ring drawbar eyes

- $\phi 68 \times \phi 42$ mm according to BNA standard NFR 41-102
- Before the first hitching of a BNA drawbar eye with towing hitch RO-50 BNA, it is necessary to check whether the outer contour is in the permitted boundary contour area. See admissible boundary contour stipulation (fig.5).

Attention:
- Use only Ring drawbar eyes $\phi 68 \times \phi 42$ mm, which are within the admissible boundary contour!
- Observe the admissible values of the Ring drawbar eye
- The Ring drawbar eye must be rotatable under a certain force in the bearing!
2. Operation

2.1 Hitching

**Note:** The relevant national regulations (e.g. safety-at-work) of the relevant must be observed when hitching and unhitching. **No one must stand between the vehicles!**

- Push hand lever upwards push further until handlever engages in the upper position
- Check whether funnel is **locked**.
- **Disengage brake on front axle** of turntable drawbar trailer (see fig. 6)
- Set drawbar eye to height of coupling point (centre of funnel)
- Slowly reverse prime mover

When engaging a **central-axle-trailer** (see fig. 6) note following:

- The drawbar eye must be inserted into the middle of the funnel. Otherwise the funnel, the drawbar eye or the drawbar landing legs might be damaged.

**Check:**

After every hitching operation it is essential to check that the coupling is engaged as required by regulations. The check pin **must be flush** with its guide bush after hitching (see fig. 7). If the check pin protrudes from its guide bush (this can also be established by touch if dark), this indicates that hitching has not been carried out correctly, and that you are at **risk of an accident. The truck may not be driven with the trailer in this condition!**

**Remedy:**
- Advance tractor unit approx. 1 m and then reverse again.
- Then check again.

In-cab status indicator upgrade kit available for retrofitting.
2. Operation

Unhitching

Observe the relevant national regulations (i.e. safety-at-work) when hitching and unhitching!

- Secure trailer to prevent it from rolling away.
- In case of central axle trailer wind down landing leg(s)
- Disconnect supply lines to trailer.
- Push hand lever upwards until it engages in its upper position (hitch is open).
  In the event of seizing between the hitch and trailer assist the unhitching process by moving the vehicle backwards and forwards or by using the air suspension system.
- Unhitch prime mover.

Note:
When driving without a trailer, keep the hitch closed to protect the ingress of dirt of the lower bush (see 2.2).

2.2 Closing coupling manually

- Raise coupling pin with suitable tool.

⚠️ Warning: Don’t put your hands into the funnel/bolt area! Danger of injury!
3.1 Care

Before starting maintenance work on the towing hitch ensure that hitch is closed. **Risk of Injuries!** (see para. 2.2)

- Before cleaning with High-pressure washers close towing hitch
- Before first use and after extended period in use lubricate coupling pin support ring and drawbar eye with heavy duty, water resistant grease (EP3)
- By changing the coupling pin, remove as much of the old grease as possible and relubricate with multy-purpose grease (Lithium saponified NLGI-2; temperature range –40° to 120°C)
3.2 Check

- After the first installation of the towing hitch, the fastening screws must be checked and, if necessary, torqued again and documented! (Abb. 8a).

Test intervals and documentation (see last page "Check")

- The support ring must be checked for wear Abb. 8b). Once the wear marks have been reached (min. 16 mm), the support ring must be replaced.

The lower bush must under no circumstances be damaged so as not to impair the closing function of the towing hitch!

Caution, risk of accidents!

Always grease the support ring to reduce wear!
3. Maintenance

- The stop prism must be checked for wear. (fig. 9)
  The prism tube must **not fall below** a thickness of 10 mm

- Coupling bolt diameter may **not fall below** \( \phi 46.5 \) in the middle part (fig. 10) otherwise bolt must be replaced

- Vertical play of coupling bolt **max. 2 mm** (fig. 11)

- Max. admissible internal diameter of lower bush may not exceed \( \phi 36 \text{ mm} \) (fig. 12)
**Technical Data**

**RO*50 BNA**

A  = Handlever upwards  
B  = Handlever downwards  
VP = 3/2 Pneumatic valve  
P  = Pressure air supply four-circuit protection valve  
PP = Pressure hose  
GN = Grease nipple

**Fitting dimensions:**

L1 = 234±5 mm  
L2 = 234±5 mm  
L3 = 125 mm  
LA = 231±2 mm  
LF = 110±5 mm  
LH = 295±3 mm  
C = 26±0,2 mm  
T = max. 32 mm thickness cross member

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Fitting dimensions:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
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<tr>
<td>L1</td>
<td>234±5 mm</td>
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<tr>
<td>L2</td>
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<td>L3</td>
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<td>LF</td>
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<tr>
<td>LH</td>
<td>295±3 mm</td>
</tr>
<tr>
<td>C</td>
<td>26±0,2 mm</td>
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<tr>
<td>T</td>
<td>max. 32 mm</td>
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</table>
# Technical Data

<table>
<thead>
<tr>
<th>Part no.</th>
<th>Hand lever</th>
<th>Size</th>
<th>Hole pattern (mm)</th>
<th>D value (kN)</th>
<th>Dc value (kN)</th>
<th>Adm. vertical load (kg)</th>
<th>V value (kN)</th>
<th>Weight (kg)</th>
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<tbody>
<tr>
<td>RO590A61001</td>
<td>A</td>
<td>U6</td>
<td>160 x 100</td>
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<td></td>
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<tr>
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<td>B</td>
<td>U6</td>
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Execution: A = Handlever upwards  
4 = Handlever upwards + pneumatic remote operation + remote indication  
B = Handlever downwards

## Upgrade Kits

### Upgrade kit remote operation

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<th>Upgrade kit remote operation</th>
<th>Part no.</th>
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<tbody>
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<td>ROE 71645</td>
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<tr>
<td>Power assisted opening and closing</td>
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### Upgrade kit remote control

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<tr>
<th>Upgrade kit remote control</th>
<th>Part no.</th>
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<tr>
<td>Electric remote indicator; in-cab status indicator</td>
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<tr>
<td>Electric remote indicator; rear indicator</td>
<td>ROE 71701</td>
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<tr>
<td>Electronic remote indicator; in-cab status indicator</td>
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# Check

## Check the fastening screws

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<th>Truck – km stand</th>
<th>Intervall</th>
<th>M1 Check of the torque of the fastening screws / nuts</th>
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<td></td>
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<tr>
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<td>Construction km + 120.000 km</td>
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<td>Construction km + 240.000 km</td>
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<tr>
<td></td>
<td>Construction km + 300.000 km</td>
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